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10/533,702	05/03/2005	Harold A Goldsberry III	CH-756/MD02-94	7830
23413	7590	01/21/2009	EXAMINER	
CANTOR COLBURN, LLP			CORDRAY, DENNIS R	
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Hartford, CT 06103				
			ART UNIT	PAPER NUMBER
			1791	
			NOTIFICATION DATE	DELIVERY MODE
			01/21/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,702	<b>Applicant(s)</b> GOLDSBERRY ET AL.	
	<b>Examiner</b> DENNIS CORDRAY	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-11, 16, 30 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-11, 16, 30 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/20/06, 7/19/07, 11/18/08</u>                               | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/25/2008 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 11/25/2008 have been fully considered but they are not persuasive.

Applicant argues on pp 6-10 that Frolich does not teach emulsifying the alkenylsuccinic anhydride (ASA) with a first starch component selected from non-ionic starches, anionic starches and mixtures thereof. Applicant cites Frolich, col 6, line 43 to col 7, line 17 for teaching that the dispersion is formed in the presence of an anionic hydrophobically modified dispersing agent. The cited lined disclose a preferred embodiment wherein anionic hydrophobically modified cellulose derivative as the dispersing agent.

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other

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product for the same use.” In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) Furthermore, “[t]he prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed....” In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

The broader disclosure of Frolich recites as dispersing agents hydrophobically modified polysaccharides, preferably starches, guar gums and cellulose derivatives, and preferably anionic derivatives (col 3, line 61 to col 4, line 2). Thus anionic starches are also disclosed as preferred dispersing agents. As Applicant admits, the dispersions of Frolich are made by mixing an aqueous phase with the dispersing agent, an optionally the surfactant, at a temperature where the sizing agent is liquid and homogenizing the mixture to form the emulsion (col 7, line 61 to col 8, line 6).

Regarding the arguments against Conner et al, pp 10-11, Applicant cites certain examples in the reference wherein a pre-formed dispersion is added to a starch solution. Other examples are discussed below. As stated in the rejection and admitted by Applicant, Conner’s dispersion can contain starch or modified starch (col 9, lines 25-29). The starch is a dispersion stabilizer and can be an anionic, non-ionic or cationic starch (e.g.-oxidized, ethylated, cationic or pearl starch). Referring to cols 11 and 12, Example 3 teaches making the dispersions with the sizing agent, dispersant and stabilizer (first starch component). In Example 4, the preformed dispersion of Example 3, which contains the stabilizer, is added to a solution of starch (second starch component) prior to sizing paper according the procedures of Example 2. The

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examples thus disclose embodiments wherein the dispersion is made using one starch, then combined with a second starch.

In any case, Claim 30 is directed to a composition. It has been long established by the court that the process of obtaining the product is immaterial or irrelevant to the patentability of a *product*. See for example, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

The rejections over the cited prior art are maintained and have been modified to address the amended claims. In addition, new grounds of rejection are made as detailed below.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 recites, “(2) a second starch component selected from the group consisting of non-ionic starches, ionic starches and mixtures,” but fails to recite what said mixtures include.

***Claim Rejections - 35 USC § 102 and 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 2-5, 16, 30 and 34 are rejected under 35 U.S.C. 102(b) as anticipated by Frolich et al (6093217).

Claims 2, 3, 5, 16 and 30: Frolich et al discloses an aqueous sizing dispersion comprising alkyl or alkenyl ketene dimer (AKD) and/or alkenyl succinic anhydride (ASA), a dispersing agent (emulsifying agent), optionally a surfactant and a retention aid, (Abs; col 1, lines 5-9; col 2, lines 48-57; col 3, lines 1-20 and 28-30; col 4, lines 34-36; col 6, lines 48-52). Frolich et al also discloses a method of making the composition comprising mixing an aqueous phase with the dispersing agent, the sizing agent and the surfactant and homogenizing the mixture to create an emulsion. The size dispersion can be premixed with the retention aid to make the sizing composition prior to introducing the mixture into a papermaking stock (col 6, lines 48-52; col 7, line 61 to col 8, line 7).

Frolich et al discloses that, in some embodiments, the dispersing agent is an anionic starch (first starch component) and is present in an amount of up to 100% by weight based on the sizing agent (col 3, lines 44-49 and 61-67; col 4, lines 1-2 and 29-

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31). The surfactant can be present in an amount from 0.1% to 20% based on the sizing agent (col 5, lines 26-29). In an example, the retention agent comprises a cationic starch (second starch component) in an amount of 8 kg/ton based on the dry stock and the dosage of sizing agent is from 0.4 to 0.8 kg/ton based on the dry stock (col 10, lines 4-27, Example 2), resulting in a ratio of cationic starch to sizing agent of 10:1 to 20:1. The disclosed ranges provide ratios of first starch and total starch to sizing agent that overlap the claimed ratios. The disclosed compositions significantly overlay compositions as claimed. The disclosed composition is a sizing composition, thus imparts useful sizing properties to paper (col 9, lines 16-21 and Example 2).

Claim 4: Frolich et al discloses a droplet size (or particle size, since the sizing agent can be solid, see col 8, lines 17-19) of the sizing agent from 0.1 to 3  $\mu\text{m}$  (col 8, lines 1-3).

4. Claims 7-11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frolich et al.

Claims 7-9: The disclosure of Frolich is used as above. Frolich et al does not disclose the claimed properties of the composition. The composition of Frolich et al is substantially identical to the claimed composition and will have the claimed sizing and stability properties because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in

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the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 10 and 11: Frolich et al does not disclose the particle size distribution in the sizing compositions. However, compositions having particle sizes from 0.1 to 3  $\mu\text{m}$  are disclosed as providing beneficial sizing. Absent convincing evidence of unexpected results due to a particular particle distribution, it would have been obvious to one of ordinary skill in the art to use any particle distribution, monomodal or multimodal for the sizing composition of Frolich et al as functionally equivalent options with a reasonable expectation of success in obtaining useful sizing properties.

Claim 34: Frolich et al does not disclose two anionic starch components. Frolich et al does disclose anionic starches that can be phosphonated, sulfonated or carboxylated as dispersing agents. "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). It would thus have been obvious to one of ordinary skill to also use a mixture of anionic starches as dispersing agents, thus creating a composition having two different anionic starches and to have a reasonable expectation of success in creating the emulsion and obtaining useful sizing properties. The product so made and having two different anionic starch components is indistinguishable from the claimed product because "It has been long established by the court that the process of obtaining the product is immaterial or



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irrelevant to the patentability of a *product*. See for example, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frolich et al as evidenced by Chunyu "Alkenyl Succinic Anhydrides (ASA): a Neutral sizing agent", China Pulp & Paper, No. 3, 2002, provided by applicant).

Claim 6: Frolich et al does not disclose hydrolyzed ASA. It is well known that ASA is very reactive and will readily hydrolyze in the presence of water (if evidence is needed, see Chunyu, p 3, Figure 4 and paragraph immediately below the figure). It would have been obvious to one of ordinary skill in the art to obtain an amount of hydrolyzed ASA within the claimed range due to the large amount of water present in the sizing compositions.

6. Claim 30 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Frolich et al.

Claim 30 is a product-by-process claim. The product of Frolich et al appears to be the same as or similar to the claimed product, an aqueous emulsion comprising ASA

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and two starches, although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the product of the product-by-process claim 30 as opposed to the product taught by the reference Frolich et al, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

7. Claims 2-5, 7-9, 16, 30 and 34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Conner et al (6183550).

Claims 2, 3, 5, 16, 30 and 34: Conner et al discloses an aqueous sizing dispersion comprising alkyl or alkenyl ketene dimer (AKD) and/or alkenyl succinic anhydride (ASA), a surfactant dispersant (emulsifying agent), and a starch stabilizer (first starch component) that in some embodiments can be nonionic or anionic, e.g. oxidized or ethylated starch, pearl starch (Abs; col 2, line 39 to col 3, line 1; col 4, line 61 to col 5, line 23; col 6, lines 13-16 and 57-67; col 9, lines 25-29). The sizing agent is present in an amount from about 1 to about 50% on a dry basis based on the total weight of the dispersion (col 9, lines 11-14). The surfactant is present in an amount from 0.0001% to 20% based on the total weight of the dispersion (col 9, lines 14-21).

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The starch is present in an amount up to about 20% on a dry basis based on the total weight of the dispersion (col 9, lines 35-38). The disclosed ranges provide ratios of first starch and total starch to sizing agent that overlap the claimed ratios.

Conner et al discloses a method of making the sizing compositions comprising emulsifying the sizing agent, dispersant and stabilizer in water (col 9, lines 5-29; col 11, lines 17-43, Example 1; col 12, lines 13-20, Example 3). In some embodiments, a cationic starch (second starch component) may be added to increase the cationic charge level of the dispersion. In other embodiments, an anionic starch (second starch component) may be added to increase the anionic charge level of the dispersion (col 9, line 64 to col 10, line 9). Alternatively, Example 4 discloses adding the already formed dispersions of Example 3 to a solution of starch according to the procedures of Example 2 prior to sizing paper (cols 11 and 12). The examples thus disclose embodiments wherein the dispersion is made using one starch, then combined with a second starch.

The disclosed compositions significantly overlay compositions as claimed.

While Conner et al does not disclose the first starch component as an emulsifying starch, the disclosed starches are the same in some embodiments as the claimed starches, thus will act as emulsifiers as well as stabilizers because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

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The disclosed composition is a sizing composition, thus imparts useful sizing properties to paper or, at least, obtaining useful sizing properties would have been obvious to one of ordinary skill in the art (also see col 10, lines 31-41).

Claim 4: In an example, the median particle size is 0.63 microns, which changed to 0.88 microns after 14 days (col 15, lines 58-63, Example 12).

Claims 7-9: Conner et al does not disclose the claimed properties of the composition. The composition of Frolich et al is substantially identical to the claimed composition and will have the claimed sizing and stability properties because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

8. Claim 30 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Conner et al.

Claim 30 is a product-by-process claim. The product of Conner et al appears to be the same as or similar to the claimed product, an aqueous emulsion of ASA and starch, although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the

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product of the product-by-process claim 30 as opposed to the product taught by the reference Conner et al, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)”

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conner et al as evidenced by Chunyu “Alkenyl Succinic Anhydrides (ASA): a Neutral sizing agent”, China Pulp & Paper, No. 3, 2002– provided by applicant).: Conner et al does not disclose hydrolyzed ASA. It is well known that ASA is very reactive and will readily hydrolyze in the presence of water (see Chunyu, p 3, Figure 4 and paragraph immediately below the figure). It would have been obvious to one of ordinary skill in the art to obtain an amount of hydrolyzed ASA within the claimed range due to the large amount of water present in the sizing compositions.

10. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conner et al.

The disclosure of Conner et al is used as above. Conner et al does not disclose the particle size distribution in the sizing compositions. Absent convincing evidence of unexpected results due to a particular particle distribution, it would have been obvious to one of ordinary skill in the art to use any particle distribution, monomodal or

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multimodal for the sizing composition of Frolich et al as functionally equivalent options with a reasonable expectation of success in obtaining useful sizing properties.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 4-11, 16 and 30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-11, 44 and 45 of copending Application No. 10/534202. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application embody aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes, a surfactant and a starch component that can

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be a mixture of starches. The sizing compositions have the same particle sizes and the same sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 4-11, 16 and 30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 6-13, 46 and 47 of copending Application No. 10/533190. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application embody aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes, a surfactant and a starch component that can be a mixture of starches. The sizing compositions have the same particle sizes and the same sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/  
Examiner, Art Unit 1791

/Eric Hug/  
Primary Examiner, Art Unit 1791